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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/507,180

08/03/2005

Marie-Pierre T.M.M.G De Bethune

TIP0028US/PCT

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08/22/2007

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NEW BRUNSWICK, NJ 08933-7003

EXAMINER

CHO, JENNIFER Y

ART UNIT

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1621

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08/22/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/507,180	Applicant(s) DE BETHUNE ET AL.	
	Examiner Jennifer Y. Cho	Art Unit 1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/5/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-19 is/are pending in the application.
- 4a) Of the above claim(s) 6,7,10,15,16 and 18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,8,11,12,17 and 19 is/are rejected.
- 7) ☒ Claim(s) 13 and 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>9/9/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

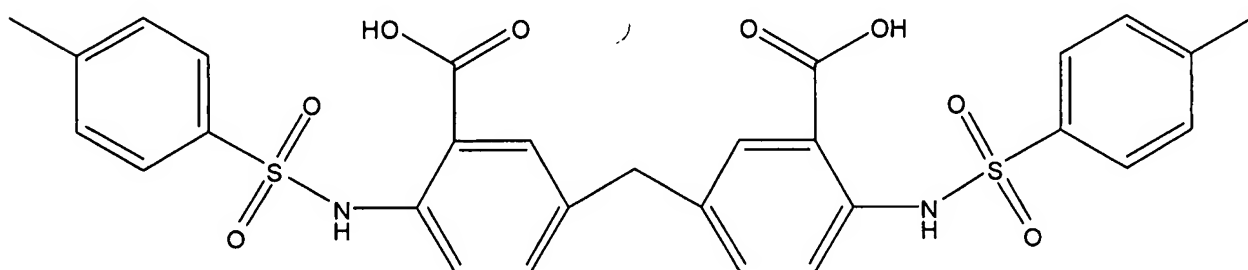
Detailed Action

This office action is in response to Applicant's communication filed on 7/5/2007.

Claims 1-8, 10-19 are pending in this application.

Applicant's election with traverse of Group 1, claims 1-8, 11-17 and 19 in the reply filed on 7/5/2007 is acknowledged. The traversal is on the ground(s) that the PCT found unity of invention. This is not found persuasive because the claims of the various groups do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical feature due to the art found on applicant's claims, as discussed within this Office Action. The requirement is still deemed proper and is therefore made FINAL. Thus claims 10 and 18 are withdrawn from consideration being drawn to the non-elected invention.

Applicant's election of the following compound is acknowledged herewith:



Thus, additionally, claims 6-7 and 15-16 are hereby withdrawn from consideration being non-readable on the elected species. Accordingly, the claims have been examined solely to the extent of the elected species.

IDS

The information disclosure statement (IDS) filed on 9/9/2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections – 35 USC 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

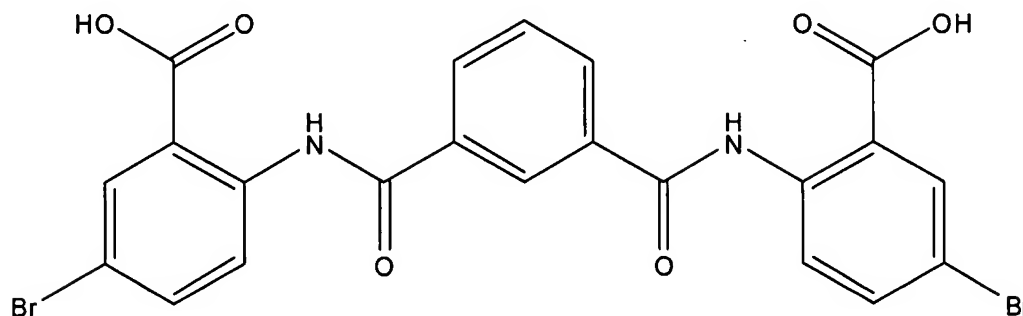
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 8, 11-12, 17, 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Milton et al. (Bioorganic & Medicinal Chemistry Letters 8 (1998) 2623-2628).

The instant claims are drawn to compounds described as small molecule entry inhibitors or antiretrovirals, with the genus structure of formula (1) as depicted in claim 1.

Milton et al. teaches the following compound (page 2627, compound number 24):



This structure corresponds to applicant's compound of formula (I), in which R^1 is a halogen (Br), $n=1$, R^3 is a hydroxy, R^4 is a hydrogen, Y is a $-C(=O)-$, R^2 is $R^8-NR^4-C(=O)-$ and R^8 is aryl. Therefore these claims are fully met.

Claim Rejections - 35 USC 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

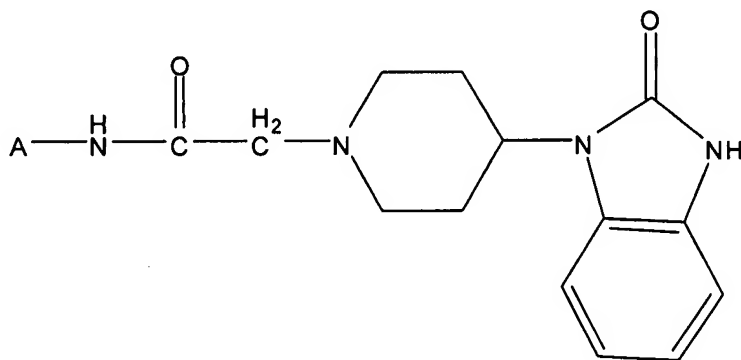
1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bender et al. (US 5,571,921).

The instant claims are drawn to compounds described as small molecule entry inhibitors or antiretrovirals, with the genus structure of formula (1) as depicted in claim 1, in which X is a -NH-S(=O)_2 , $\text{-S(=O)}_2\text{-NH-}$, -NH-C(=O) , OR -C(=O)-NH- .

Bender et al. teaches compounds with the following structure, in which A is a phenyl, substituted with $\text{-SO}_2\text{NR}^9\text{R}^{10}$, in which R^9 is hydrogen and R^{10} is phenyl (column 31, lines 45-55, 67; column 33, lines 1-3):



Bender et al. is deficient in the sense that it does not exemplify Applicant's particular species.

However, it would be prima facie obvious to one of ordinary skill in the art at the time of the invention, to determine the appropriate chemical constituents from Bender et al.'s genus structural limitations, to arrive at Applicant's compounds. One of ordinary

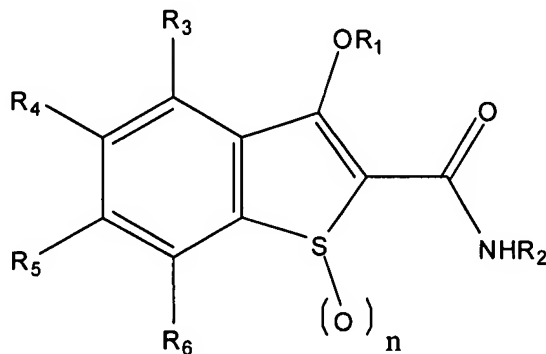
Art Unit: 1621

skill in the art would have been motivated to make the homologs of the compounds disclosed in Bender et al., with the reasonable expectation that the compounds would be useful as antiretroviral agents. Absent any showing of unusual and/or unexpected results over Applicant's particular synthetic route, the art obtains the same subgenus structure. The expected result would be the efficient production of small molecule entry inhibitors as antiretrovirals for the pharmaceutical industry.

Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Connor et al. (WO 95/05170).

The instant claims are drawn to compounds described as small molecule entry inhibitors or antiretrovirals, with the genus structure of formula (1) as depicted in claim 1, in which R^2 is halogen, bromo, chloro, alkyl, alkyloxy haloalkyl, alkenyl or alkynyl, said substituents being in the meta or para position and n is 1.

Connor et al. teaches compounds with the following structure in which R_2 is phenyl substituted with $(CH_2)_mQ$, in which $m=0$ and Q is CO_2R_7 , in which R_7 is hydrogen. Additionally, R_3 , R_4 , R_5 and R_6 can be halogen, lower alkyl or lower alkoxy (page 27, formula I, claim 1).

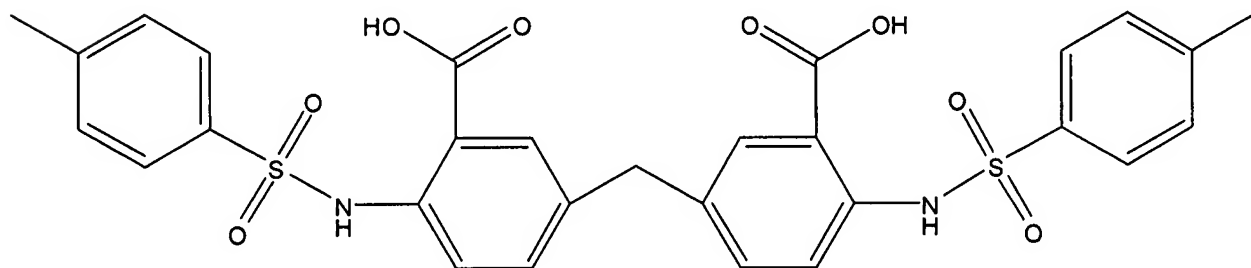


Connor et al. is deficient in the sense that it does not exemplify Applicant's particular species.

However, it would be prima facie obvious to one of ordinary skill in the art at the time of the invention, to determine the appropriate chemical constituents from Connor et al.'s genus structural limitations, to arrive at Applicant's compounds. One of ordinary skill in the art would have been motivated to make the homologs of the compounds disclosed in Connor et al., with the reasonable expectation that the compounds would be useful as antiretroviral agents. Absent any showing of unusual and/or unexpected results over Applicant's particular synthetic route, the art obtains the same subgenus structure. The expected result would be the efficient production of small molecule entry inhibitors as antiretrovirals for the pharmaceutical industry.

Allowable Subject Matter

Applicant's elected species, drawn below, appears to be free of prior art.



The search was extended to the point to where patentability can be determined with respect to the claims.

Claims 13 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer Y. Cho whose telephone number is (571) 272 6246. The examiner can normally be reached on 9 AM - 6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler can be reached on (571) 272 0871. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number: 10/507,180

Page 9

Art Unit: 1621

Jennifer Cho
Patent Examiner
Art Unit: 1621


FOR

Yvonne Eyler
Supervisory Patent Examiner
Technology Center 1600